

Recommended Pertussis Control Measures (May 2020)

Clinical symptoms

Catarrhal stage: Cold-like symptoms (runny nose, sneezing, mild cough). Fever is absent or minimal. Stage lasts 1-2 weeks and cough gradually becomes more severe.

Paroxysmal stage: Cough worsens and progresses to spasms (paroxysms) of cough, followed by sudden inspiration (may result in “whoop” noise). Cough may be followed by post-tussive vomiting. Those with pertussis may appear well between bouts of coughing.

Convalescent stage: Cough gradually becomes less severe and spasms decrease in frequency. Pertussis cough can last 6-10 weeks, or longer.

Note: Pertussis in children < 6 months is most severe, and can be atypical (short catarrhal stage, poor feeding, cyanosis or apneic spells, no whoop, longer convalescent stage).

Clinical Criteria

In the absence of a more likely diagnosis, a cough illness lasting ≥ 2 weeks, with at least one of the following signs or symptoms:

- Paroxysms of coughing; OR
- Inspiratory whoop; OR
- Post-tussive vomiting; OR
- Apnea (with or without cyanosis)

Case Classification

Probable

- In the absence of a more likely diagnosis, illness meeting the clinical criteria OR
- Illness with cough of any duration with at least one of the following symptoms:
 - Paroxysms of coughing; or
 - Inspiratory whoop; or
 - Post-tussive vomiting; or
 - Apnea (with or without cyanosis);

AND

Contact with a laboratory confirmed case

Confirmed

- Acute cough illness of any duration with
 - Isolation of *Bordetella pertussis* from a clinical specimen; OR
 - PCR positive for *B. pertussis*

Transmission

Transmission is by contact with respiratory droplets from an infected person. Contact with contaminated surfaces rarely transmits infection.

Infectious period

From the onset of cold-like symptoms to 3 weeks after cough onset. Persons are considered non-infectious after 5 days of appropriate antibiotic treatment.

Incubation period

Typically 7-10 days with a range of 4-21 days.

Reporting

Per Indiana law (410 IAC 1-2.5-75 & 76), suspected and confirmed cases of pertussis should be reported within 24 hours to your local health department. **Timely reporting is critical to the interruption of pertussis transmission.**

If you cannot contact your local health department staff, call ISDH at:

- (317) 233-7125 during business hours, or
- (317) 233-1325 on weekends, holidays, or other non-working hours.

Diagnostic Testing

Suspect cases of pertussis should be tested using polymerase chain reaction (PCR) and/or culture. Only symptomatic patients should be tested.

- PCR testing can be a rapid, specific, and sensitive method for diagnosing pertussis. It is best to collect the specimen in the first 3 weeks of cough. For PCR best practices, please see: www.cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-pcr-bestpractices.html.
- Although culture is considered the “gold standard” for lab diagnosis of pertussis, results may take as long as two weeks to obtain. Specimens should be collected during the first 2 weeks of illness, prior to the start of antibiotics. A negative culture does not rule out pertussis.
- Serology testing is not considered confirmatory for surveillance purposes but may be useful for diagnosis of patients presenting late in the course of illness.
- Direct fluorescent antibody (DFA) testing is not recommended.

Treatment

Erythromycin, clarithromycin, or azithromycin are the preferred antimicrobial agents for treatment and prophylaxis of pertussis. Please see Table 1 (page 3) of this document for prescribing information by age group. Patients are considered non-infectious after completing the 5th day of appropriate treatment.

DO NOT WAIT FOR LAB RESULTS TO TREAT SUSPECTED CASES.

Close Contacts

CDC recommends targeting postexposure antibiotic use to persons at high risk of developing severe pertussis and to persons who will have close contact with those at high risk of developing severe pertussis.

High risk close contacts include:

- Household members
- Infants and pregnant women in their 3rd trimester
- Anyone with pre-existing health conditions that may be exacerbated by pertussis (such as those who are immunocompromised and patients with moderate to severe asthma)
- Contacts who are in close contact with infants, pregnant women, or people who are immunocompromised
- All contacts in settings that include infants under the age of 12 months and/or women in their 3rd trimester (such as neonatal ICUs, childcare settings, and maternity wards)

Post Exposure Prophylaxis

Antimicrobial prophylaxis (same regimen as treatment for cases) may be recommended for patients who are close contacts of pertussis cases. **Prophylaxis is recommended for close contacts regardless of vaccination status.**

- Prophylaxis is recommended if exposure to an infectious case occurred within the previous 21 days (the incubation period for pertussis).
- Asymptomatic contacts receiving prophylaxis should **not** be excluded from their usual activities.
- Symptomatic contacts should be evaluated as suspect pertussis cases.

Vaccination of Contacts

In addition to providing antimicrobial prophylaxis, providers should assess the pertussis vaccination status of close contacts. Tdap is licensed for persons aged 10 years and older (Boostrix) or 10 through 64 years (Adacel). The Advisory Committee of Immunization Practices (ACIP) recommends off-label use of Tdap, such as giving Tdap to under-vaccinated children age 7-9 years.

Vaccination recommendations are as follows:

- Give DTaP to children under 7 years of age who are due or overdue for DTaP vaccination.
- Give one dose of Tdap to children 7-10 years old who are not fully vaccinated against pertussis.
- Do not wait for the pre-adolescent check-up to provide Tdap to household contacts of a pertussis case; give it as early as 10 years old.
- Give Tdap to adolescents and adults ages 11 and older who have not yet received a Tdap. Give the dose regardless of the interval since the last Td.
- ACIP recommends that women receive a dose of Tdap during **each and every** pregnancy, preferably between 27 and 36 weeks gestation. If not administered during pregnancy, Tdap should be given immediately postpartum.

Precautions for Medical/Hospital Exposure

- Cases isolated by droplet precautions: Surveillance for additional cases is recommended.
- Cases not isolated by droplet precautions:
 - a. Provide prophylaxis for staff (whether vaccinated with Tdap or not) who did not wear respiratory protection and had direct contact with respiratory secretions.
 - b. Surveillance of staff and patients for respiratory symptoms for 21 days.
 - c. Encourage staff who have not previously received a dose of Tdap to get the vaccine.

Precautions for Daycare and School

Children with pertussis may return to school or daycare after completion of 5 days of appropriate antibiotic therapy or after 21 days of cough. Symptomatic children should be excluded pending a physician's evaluation.

Precautions for Pregnant Women

- Erythromycin or azithromycin are the preferred antibiotics for pertussis treatment or post-exposure prophylaxis during pregnancy.
- If a pregnant patient is exposed to pertussis, particularly in the 3rd trimester, antibiotics are recommended to protect her and the newborn.
- If a pregnant patient has pertussis, especially near-term or at delivery, treat her with antibiotics, and ensure that her newborn and household contacts receive antibiotics.

**Table 1: Recommended Antimicrobial Therapy and Postexposure Prophylaxis for Pertussis
In Infants, Children, Adolescents, and Adults¹**

Age Group	Recommended Drugs			Alternate agent ²
	Azithromycin	Erythromycin	Clarithromycin	TMP-SMX
<1 month	10 mg/kg/day as a single dose for 5 days ³	40-50 mg/kg/day in 4 divided doses for 14 days	Not recommended	Contraindicated at <2 months
1-5 months	See above	See above	15 mg/kg per day in 2 divided doses for 7 days	≥2 mo of age: TMP, 8mg/kg/day; SMX, 40 mg/kg/day in 2 doses for 14 days
≥6 months and children	10 mg/kg as a single dose on day 1 (maximum 500 mg), then 5 mg/kg/day as a single dose on days 2-5 (maximum 250 mg/day)	40 mg/kg/day in 4 divided doses for 7-14 days (maximum 1-2 g/day)	15 mg/kg per day in 2 divided doses for 7 days (maximum 1 g/day)	See above
Adolescents and Adults	500 mg as a single dose on day 1, then 250 mg as a single dose on days 2-5	2 g/day in 4 divided doses for 7-14 days	1 g/day in 2 divided doses for 7 days	TMP, 320 mg/day; SMX, 1600 mg/day in 2 divided doses for 14 days

¹ Adopted from American Academy of Pediatrics Red Book, 2018-2021 and Centers for Disease Control and Prevention's "Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis: 2005 CDC guidelines"

² TMP=trimethoprim; SMX=sulfamethoxazole. This drug can be used as an alternative in patients >2 months of age who cannot tolerate macrolides or who are infected with a rare macrolide resistant strain of *B. pertussis*.

³ Preferred macrolide for this age group because of the risk of idiopathic hypertrophic pyloric stenosis associated with erythromycin